

**CLAIMS**

1. A method of locating a missing item, the item being capable of communicating its presence to a piconet telecommunications device,  
5 comprising:

(i) there being a plurality of piconet devices capable of forming a short range piconet;

10 (ii) having the piconet devices establish which other piconet devices are members of the piconet to which they belong at a particular point in time, and having the piconet devices create an activity log correlating at least time and the identity of which piconet devices were in communication at that point in time;

15 (iii) establishing whether the missing item is present in the current piconet of said piconet device and/or reviewing the activity log to establish whether a record exists of a historic piconet to which both the missing item and a contactable other piconet device belonged at the time  
20 that the historic piconet existed.

2. A method according to claim 1 which includes the step of contacting said other piconet device and establishing whether the missing item is part of the piconet that now includes other piconet device.

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3. A method according to claim 1 or claim 2 in which each piconet device preferably creates its own activity log and stores it in itself, in its own memory.

30 4. A method according to claim 1 or claim 2 in which a piconet device stores its activity log remote from itself.

5. The method of any preceding claim comprising having a search-requesting piconet device check its own piconet for the presence of the missing device before screening the activity log, or its own piconet activity log to look for a historic piconet to which both itself, the missing  
5 item, and said other piconet device belonged, and then contacting said other piconet to establish whether the missing item is part of the current piconet of said other piconet device.

6. The method of claim 5 comprising having the search-requesting  
10 piconet device and said other piconet device be capable of long range telecommunication and having the search-requesting device contact said other device using its long range telecommunications capabilities.

7. The method of any preceding claim comprising asking piconet  
15 devices with long range telecommunication capabilities whether the missing item is presently in their local piconet in reverse chronological order that they are known from the activity log to have been in contact with the missing item.

20 8. The method according to any preceding claim comprising having a cut off point beyond which the search does not backtrack for contacts.

9. The method of any preceding claim comprising either using (i) a search-requesting piconet device which itself has a long distance  
25 telecommunication capability; or (ii) using a device which has only piconet range telecommunications but that is in contact with a piconet member which does have long distance telecommunications ability and uses their long range telecommunications; to contact said other devices.

30 10. The method according to any preceding claim comprising sequentially asking those other piconet devices that are identified from

the activity log for information on whether the missing item is in their current piconet.

11. The method according to any one of claims 1 to 9 comprising  
5 simultaneously or substantially simultaneously asking a plurality of said other devices for information on whether the missing item is in their current piconet, without waiting for a reply from the first said other device interrogated.

10 12. The method of any preceding claim further comprising having the piconet devices record their geographical, or physical, location at the time that a piconet exists.

13. The method of claim 12 further comprising making piconet  
15 connection between a first device which has no inherent self-location abilities and another, second, device which does know its own location, and having the first device assume itself to be at the same, known, location as the second device.

20 14. The method of any preceding claim wherein the creation of the activity logs of the piconet devices occurs automatically without human intervention when the devices form a piconet.

15. A method of locating a missing item, the item being capable of  
25 communicating its presence to a piconet telecommunications device, comprising;

(i) there being a plurality of piconet devices capable of forming a short range piconet and forming a piconet with those devices;

(ii) having the piconet devices establish which other piconet devices are members of the piconet to which they belong at a particular point in time and having the piconet devices create an activity log correlating at least time and the identity of which piconet devices were in communication at that point in time;

(iii) establishing whether the missing item is present in the current piconet of a said piconet device and/or reviewing the activity log to establish whether a record exists of a historic piconet to which both the missing item and a contactable other piconet device belonged at the time that the historic piconet existed;

(iv) establishing whether there is a known location for the historic piconet which most recently had as a member the missing item.

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16. A method according to claim 15 comprising communicating the last known location of the missing item to the user of the method to enable them to consider whether to investigate that known location to see if the missing item can be found.

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17. The method of claim 15 or claim 16 comprising visiting the vicinity of the last known position of the missing item to see if the missing item is there, or contacting a person or device in the vicinity of the last known position of the missing item to enquire after the item.

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18. The method of any one of claims 15 to 17 comprising electronically contacting a known piconet device known to be in the locality of the place where the missing item was last known to be, and enquiring whether the missing item is detectable by the contacted device.

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19. The method of any one of claims 15 to 18 comprising identifying known piconet devices that are believed to be in the vicinity of the last known location of the missing item and determining whether the missing item is in a piconet with them.

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20. A piconet telecommunications device having a piconet receiver capable of receiving information about members of a piconet to which the device temporarily belongs and a controller; wherein the controller is arranged in use to capture a piconet activity log when the device comes within piconet range of other piconet devices and to build up a log of which other devices were piconet members with the device and at what time that piconet existed, and also which of those devices are dual mode devices having both piconet capabilities and having long range telecommunication abilities, and to establish their long range telecommunication addresses; and in which the controller is capable of receiving a request to search for a missing item of known identity and upon such request is adapted to screen the activity log to identify historic piconets which contained the missing item and a dual mode device, and wherein the controller is adapted upon identifying such a dual mode device to contact it via long range telecommunications and to establish whether the missing item is in the current piconet of the dual mode device.

21. A piconet telecommunications device having a piconet receiver capable of receiving information about members of a piconet to which the device temporarily belongs and a controller; wherein the controller is arranged in use to capture a piconet activity log when the device comes within piconet range of other piconet devices, the piconet activity log comprising a record of which other devices were piconet members with the device and at what time that piconet existed and a positional location for the piconet at that time; and in which the controller is capable of

receiving a request to search for a missing item of known identity and upon such request is adapted to screen the activity log to identify historic piconets known to the device to have contained the missing item and the positional location of the historic piconet which last contained the missing item, the device being adapted to communicate the last, piconet-known to the device, location of the missing item to the user.

22. A device according to claim 20 or claim 21 which has a memory and in which the controller is adapted to store the device's activity log in the memory of the device.

23. A device according to any one of claims 20 to 22 which is a dual mode device having a long range telecommunications transmitter and receiver, and in which the device is adapted to contact said dual mode device that is known at one time to have been in a piconet with the missing item, or to contact a piconet device near the last known position of the missing item, using its long range telecommunication transmitter and receiver.

24. A device according to any one of claims 20 to 23 in which the controller has the capability of recording in the activity log the geographical location of the device and associating the position of the device at a point in time with the piconet members at that point in time.

25. A device according to claim 24 which has a location identifier.

26. A device according to any one of claims 20 to 25 which has a clock and is adapted to time-stamp piconet membership data at a particular point in time using its clock; or which is adapted to import the time from an external source and adapted to time stamp the details of which devices were members of the piconet at a certain time.

27. A device according to any one of claims 20 to 26 which is a portable mobile electronic device

28. A device according to any one of claims 20 to 27, in which the  
5 controller is adapted to establish the telecommunications address of piconet members and store them so as to be able to retrieve them in order to contact them at some time in the future.

29. A device according to any one of claims 20 to 28 which is adapted  
10 to establish the nearest fixed device position, or last known position of a mobile device, that has long range telecommunications, near to the last known position of the missing item, and to contact them to enquire whether the missing item is in their piconet.

15 30. A device according to any one of claims 20 to 29 which has details of predetermined favourite locations, and corresponding address for long range telecommunication devices which are equipped for piconet communication and which are near or associated with these locations, and which is adapted to contact such devices as part of a search for a missing  
20 item.

31. A piconet network comprising a plurality of piconet devices in communication, the piconet devices having the functional capability of automatically exchanging with other devices in a piconet, without human  
25 intervention, information as to their identity, and of recording the identity of members of the piconet in an activity log or in respective piconet activity logs associated with each piconet device, the activity log(s) including the members of the piconet and a time at which the particular piconet with those particular members existed.

32. A piconet according to claim 31 which has a device in accordance with any one of claims 20 to 30 and/or is capable of operating in accordance with any one of claims 1 to 19.

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33. A piconet telecommunications device having a piconet receiver capable of receiving information about members of piconets to which the device temporarily belongs, and a controller; wherein the controller is arranged in use to create automatically, without user intervention, when  
10 the device comes within piconet range of a piconet apparatus and communicates with said piconet apparatus, a piconet activity log which records the identity of the members of the piconet to which the device belongs.

15 34. A device according to claim 33 wherein the controller is adapted to record the piconet members and the time at which members joined and/or left the piconet, as well as their identities.

20 35. A device according to claim 33 or claim 34 wherein the controller is also adapted to record the geophysical location associated with a piconet membership at a particular time.

25 36. A device according to claim 35 wherein the device has a geophysical location sensor adapted to provide details of the geophysical location of the device.

37. A device according to any one of claims 33 to 36 which is portable.

30 38. A device according to claim 37 which is hand-portable and pocketable.



39. A device according to any one of claims 20 to 30, or 33 to 38, further comprising the controller having details of an associated item set associating a set of known items in a notional group, and the controller being adapted to monitor the piconet to which the device belongs and  
5 being adapted to generate an alarm when an item from said associated item set leaves the piconet.

40. A device according to claim 39 wherein the controller is adapted to generate an immediate alarm and the alarm is adapted to attract the  
10 attention of the user via at least one of their senses.

41. A device according to claim 39 or 40 wherein the controller is adapted to generate an alarm when it detects the absence from the piconet to which the device belongs of an item from the associated item set.  
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42. A device according to any one of claims 39 to 41 having a user-operable alarm cancellation input adapted to enable a user to stop an alarm.

20 43. A device according to any one of claims 20 to 30, or claims 33 to 42 wherein the controller is adapted to generate a report analysing the piconet activity log and/or export the piconet activity log to another electronic device.

25 44. A method of tracking piconet-capable articles in the physical environment of a piconet device comprising having the device automatically create without user input a piconet activity log of the identity of piconet capable articles which have formed an ad-hoc piconet with said device.

45. A method according to claim 44 comprising associating in the piconet activity log a time for membership of the piconet for piconet-capable articles.

5 46. A method according to claim 45 comprising recording in the piconet log the time that an article joins and/or leaves the piconet.

47. A method according to any one of claims 1 to 19 or any one of claims 44 to 46 comprising having an associated set of piconet member  
10 articles whose presence in the piconet is tracked, and generating an alarm when an article of the associated set of piconet member articles leaves the piconet.

48. A method according to any one of claims 1 to 19 or claims 44 to 47  
15 comprising generating a report analysing the contents of the piconet activity log.

49. A method according to any one of claims 1 to 19 or claims 44 to 48  
20 comprising generating a report on articles in the present or historic piconets using the piconet activity log.

50. A method according to claim 48 or claim 49 comprising generating at least one of the following reports:

- (i) members of piconet at a particular time;
- 25 (ii) history of piconet membership for a selected piconet member device;
- (iii) correlation of piconet membership for selected first and second piconet member devices;
- (iv) selected piconet device at selected physical location(s);
- 30 (v) piconet member devices that have been at selected physical location(s).

51. A data carrier having a program encoded upon it, the program when loaded onto, or running on, a controller of a piconet device causing the piconet device to be a piconet device in accordance with any one of
- 5 claims 20 to 30 or claims 33 to 43; and/or to perform the method of any one of claims 1 to 19 or claims 44 to 50; or to be part of a network in accordance with claim 31 or claim 32.